The Journal of Infectious Diseases

Volume 182 • Number 1 *July 2000*

Major Articles

1 Poliovirus-Specific Intestinal Antibody Responses Coincide with Decline of Poliovirus Excretion
Sanna Valtanen, Merja Roivainen, Liisa Piirainen, Mirja Stenvik, and Tapani Hovi

6 Widespread Paralytic Poliomyelitis in Pakistan: A Case-Control Study to Determine Risk Factors and Implications for Poliomyelitis Eradication
Karen A. Hennessey, Arthur Marx, Rehan Hafiz, Humayun Ashgar, Stephen C. Hadler, Hamid Jafari, and Roland W. Sutter

12 Duration of Viremia in Hepatitis A Virus Infection
William A. Bower, Omana V. Nainan, Xiaohua Han, and Harold S. Margolis

18 DNA Prime–Canarypox Boost with Polycistronic Hepatitis C Virus (HCV) Genes Generates Potent Immune Responses to HCV Structural and Nonstructural Proteins
Preeti Pancholi, Qingyan Liu, Nancy Tricoche, Pei Zhang, Marion E. Perkus, and Alfred M. Prince

28 Differences in Viral Dynamics between Genotypes 1 and 2 of Hepatitis C Virus
Avidan U. Neumann, Nancy P. Lam, Harel Dahari, Marie Davidian, Thelma E. Wiley, Brian P. Mika, Alan S. Perelson, and Thomas J. Layden

36 New Molecular Assays to Predict Occurrence of Cytomegalovirus Disease in Renal Transplant Recipients
Isabelle Pellegrin, Isabelle Garrigue, Didier Ekouevi, Lionel Couzi, Pierre Merville, Patrick Merel, Geneviève Chene, Marie-Hélène Schrive, Pascale Trimoulet, Marie-Edith Lafon, and Hervé Fleury

43 Humoral Immune Responses in the Hantavirus Cardiopulmonary Syndrome
Mausumi Bharadwaj, Robert Nofchissey, Diane Goade, Frederick Koster, and Brian Hjelle

49 Structural Prerequisites for Intersubtype B and D Antigenicity of the Third Variable Envelope Region (V3) of Human Immunodeficiency Virus Type 1
Alex Lawoko, Bo Johansson, Johan Ljunggren, Andreas Fries, Robert Fredriksson, Liljana Georgievska, Bo Malmvall, Rudiger Pipkorn, Eva-Maria Fenyö, and Jonas Blomberg

59 Methods for Investigation of the Relationship between Drug-Susceptibility Phenotype and Human Immunodeficiency Virus Type 1 Genotype with Applications to AIDS Clinical Trials Group 333
Anne D. Sevin, Victor DeGruttola, Monique Nijhuis, Jonathan M. Schapiro, Andrea S. Foulkes, Michael F. Para, and Charles A. B. Boucher

68 Consistent and Significant Inhibition of Human Immunodeficiency Virus Type 1 Envelope–Mediated Membrane Fusion by β-Chemokines (RANTES) in Primary Human Macrophages
Tzanko S. Stantchev and Christopher C. Broder

79 Human Immunodeficiency Virus Type 1 Shedding Pattern in Semen Correlates with the Compartmentalization of Viral Quasi Species between Blood and Semen
Phalguni Gupta, Caroline Leroux, Bruce K. Patterson, Lawrence Kingsley, Charles Rinaldo, Ming Ding, Yue Chen, Kathy Kulka, William Buchanan, Brian McKeon, and Ronald Montelaro

88 The Impact of Early Initiation of Highly Active Antiretroviral Therapy on the Human Immunodeficiency Virus Type 1–Specific CD8 T Cell Response in Children
Hans M. L. Spiegel, Rohit Chandwani, Megan E. Sheehy, Joanna Dobroszycki, Glenn Fennelly, Andrew Wiznia, Jayme Radding, Mona Rigaud, Henry Pollack, William Borkowsky, Michael Rosenberg, and Douglas F. Nixon

96 Immunologic Response to Combination Nucleoside Analogue plus Protease Inhibitor Therapy in Stable Antiretroviral Therapy–Experienced Human Immunodeficiency Virus–Infected Children
William Borkowsky, Kenneth Stanley, Steven D. Douglas, Sophia Lee, Andrew Wiznia, Stephen Pelton, Ram Yogev, Kenneth McIntosh, Sharon Nachman, and Pediatric AIDS Clinical Trials Group 338 Study Team

104 Disease Progression and Early Viral Dynamics in Human Immunodeficiency Virus–Infected Children Exposed to Zidovudine during Prenatal and Perinatal Periods
Louise Kuhn, Elaine J. Abrams, Jeremy Weedon, Genevieve Lambert, Ellie E. Schoenbaum, Steve R. Nesheim, Paul Palumbo, Peter E. Vink, Marc Bulterys, and for the Perinatal AIDS Collaborative Transmission Study (PACTS)

112 Selection of Drug-Resistant Variants in the Female Genital Tract of Human Immunodeficiency Virus Type 1–Infected Women Receiving Antiretroviral Therapy
Ali Si-Mohamed, Michel D. Kazatchkine, Isabelle Heard, Christophe Goujon, Thierry Prazuck, Guy Aymard, Gilles Cessot, Yu-Hung Kuo, Marie-Charlotte Bernard, Bertrand Diquet, Jean-Elie Malkin, Laurent Gutmann, and Laurent Bélec

123 Factors Contributing to the Lack of Human Immunodeficiency Virus Type 1 (HIV-1) Transmission in HIV-1–Discordant Partners
Dorothee Bienzle, Kelly S. MacDonald, Fiona M. Smaill, Colin Kovacs, Mahin Baqi, Barbara Courssaris, Mark A. Luscher, Sharon L. Walmsley, and Kenneth L. Rosenthal

133 Acute Serogroup A Streptococcal Shock: A Porcine Model
T. Saetre, E. A. Hoiby, T. Aspelin, G. Lermark, and T. Lyberg

142 Cross-Protection between Group A and Group B Streptococci Due to Cross-Reacting Surface Proteins
Margaretha Stålhammar-Carlemalm, Thomas Areschoug, Charlotte Larsson, and Gunnar Lindahl

150 Group B Streptococcal β-Hemolysin Induces Nitric Oxide Production in Murine Macrophages
Axel Ring, Johann S. Braun, Victor Nizet, Wolfgang Strenmmel, and Jerry L. Shenep

158 Antibody to Capsular Polysaccharide of *Streptococcus pneumoniae* at the Time of Hospital Admission for Pneumococcal Pneumonia
Daniel M. Musher, Hoang M. Phan, David A. Watson, and Robert E. Baughn

168 Invasive Disease Due to Group B Streptococcal Infection in Adults: Results From a Canadian, Population-Based, Active Laboratory Surveillance Study—1996
Gregory J. Tyrrell, Linda D. Senzilet, John S. Spika, Daniel A. Kertesz, Merrilyn Alagaratnam, Marguerite Lovgren, James A. Talbot, and the Sentinel Health Unit Surveillance System Site Coordinators

174 Morbidity of Pertussis in Adolescents and Adults
Gaston De Serres, Ramak Shadmani, Bernard Duval, Nicole Boulianne, Pierre Déry, Monique Douville Fradet, Louis Rochette, and Scott A. Halperin

180 Enterotoxin Adjuvants Have Direct Effects on T Cells and Antigen-Presenting Cells That Result in Either Interleukin-4–Dependent or –Independent Immune Responses
Masafumi Yamamoto, Hiroshi Kiyono, Mi-Na Kweon, Shingo Yamamoto, Kohtaro Fujihashi, Hisao Kurazono, Koichi Imaoka, Horst Bluethmann, Ichiro Takahashi, Yoshifumi Takeda, Miyuki Azuma, and Jerry R. McGhee

191 Targeting Lipopolysaccharides by the Nontoxic Polymyxin B Nonapeptide Sensitizes Resistant *Escherichia coli* to the Bactericidal Effect of Human Neutrophils
Frank Rose, Kay U. Heuer, Ulf Sibelius, Sabine Hombach-Klonisch, Ladislau Kiss, Werner Seeger, and Friedrich Grimminger

200 The Agent of Human Granulocytic Ehrlichiosis Induces the Production of Myelosuppressing Chemokines without Induction of Proinflammatory Cytokines
Marina B. Klein, Shuxian Hu, Chun C. Chao, and Jesse L. Goodman

206 Soluble Granzymes Are Released during Human Endotoxemia and in Patients with Severe Infection Due to Gram-Negative Bacteria
Fanny N. Lauw, Andrew J. H. Simpson, C. Erik Hack, Jan M. Prins, Angela M. Wolbink, Sander J. H. van Deventer, Wipada Chaowagul, Nicholas J. White, and Tom van der Poll

214 Role of Nitric Oxide in the Failure of Neutrophil Migration in Sepsis
C. F. Benjamim, S. H. Ferreira, and F. d. Q. Cunha

224 Cloning of a *Mycobacterium tuberculosis* Gene Encoding a Purifed Protein Derivative Protein That Elicits Strong Tuberculosis-Specific Delayed-Type Hypersensitivity
Rhea N. Coler, Yasir A. W. Skeiky, Pamela J. Ovendale, Thomas S. Vedvick, Luis Gervassi, Jeff Guderian, Shyian Jen, Steven G. Reed, and Antonio Campos-Neto

234 Production of Interleukin-18 in Human Tuberculosis
Ramakrishna Vankayalapati, Benjamin Wizel, Stephen E. Weis, Buka Samten, William M. Girard, and Peter F. Barnes

240 Mannosylated Lipoarabinomannan Antagonizes *Mycobacterium tuberculosis*–Induced Macrophage Apoptosis by Altering Ca^{+2}-Dependent Cell Signaling
Mauricio Rojas, Luis F. García, Jérôme Nigou, Germain Puzo, and Martin Olivier

252 *Plasmodium falciparum*–Infected Erythrocytes: Agglutination by Diverse Kenyan Plasma Is Associated with Severe Disease and Young Host Age
P. C. Bull, M. Kortok, O. Kai, F. Ndungu, A. Ross, B. S. Lowe, C. I. Newbold, and K. Marsh

260 Chronic Schistosomiasis: Dendritic Cells Generated from Patients Can Overcome Antigen-Specific T Cell Hyporesponsiveness
Anita H. J. van den Biggelaar, Jane L. Grogan, Yvonne Filié, Reina Jordens, Peter G. Kremsner, Frits Koning, and Maria Yazdanbakhsh

266 Increased Resistance to Systemic Candidiasis in Athymic or Interleukin-10–Depleted Mice
Delfina Tavares, Paula Ferreira, and Mário Arala-Chaves

274 Comparative Efficacy and Distribution of Lipid Formulations of Amphotericin B in Experimental *Candida albicans* Infection of the Central Nervous System
Andreas H. Groll, Neelam Giri, Vidmantas Petraitis, Ruta Petraitiene, Myrna Candelario, John S. Bacher, Stephen C. Piscitelli, and Thomas J. Walsh

283 Conditional Lethality of the Diprotic Weak Bases Chloroquine and Quinacrine against *Cryptococcus neoformans*
Thomas S. Harrison, George E. Griffin, and Stuart M. Levitz

Concise Communications

290 Genetic Characterization of Thymidine Kinase from Acyclovir-Resistant and -Susceptible Herpes Simplex Virus Type 1 Isolated from Bone Marrow Transplant Recipients
Florence Morfin, Gérard Souillet, Karin Bilger, Tadamasa Ooka, Michèle Aymard, and Danielle Thouvenot

294 Identification of 2 Novel Isolates of Hepatitis E Virus in Argentina
George G. Schlauder, Bernardo Frider, Silvia Sookoian, Gustavo C. Castaño, and Isa K. Mushahwar

298 Stable Enterovirus 5′ Nontranslated Region over a 7-Year Period in a Patient with Agammaglobulinemia and Chronic Infection
James J. Dunn, José R. Romero, Richard Wasserman, and Harley A. Rotbart

302 Human Immune Responses to a Novel Norwalk Virus Vaccine Delivered in Transgenic Potatoes
Carol O. Tacket, Hugh S. Mason, Genevieve Losonsky, Mary K. Estes, Myron M. Levine, and Charles J. Arntzen

306 Evaluation of the Latency-Associated Nuclear Antigen (ORF73) of Kaposi's Sarcoma–Associated Herpesvirus by Peptide Mapping and Bacterially Expressed Recombinant Western Blot Assay
Sonja J. Olsen, Ronit Sarid, Yuan Chang, and Patrick S. Moore

311 Shorter Survival of *SDF1-3′A/3′A* Homozygotes Linked to CD4$^+$ T Cell Decrease in Advanced Human Immunodeficiency Virus Type 1 Infection
Andrea Brambilla, Chiara Villa, GianPaolo Rizzardi, Fabrizio Veglia, Silvia Ghezzi, Adriano Lazzarin, Marco Cusini, Simona Muratori, Elena Santagostino, Alessandro Gringeri, Leslie G. Louie, Haynes W. Sheppard, Guido Poli, Nelson L. Michael, Giuseppe Pantaleo, and Elisa Vicenzi

316 Analysis of *env* Sequence Evolution in Human Immunodeficiency Virus–Infected Patients Receiving Therapy with Nonnucleoside Reverse-Transcriptase Inhibitors
C. Dykes, P. Mootsikapun, A. Dexter, L. Berrios, M. Chiulli, R. C. Reichman, and L. M. Demeter

321 In Vivo Antagonism with Zidovudine plus Stavudine Combination Therapy
Diane V. Havlir, Camlin Tierney, Gerald H. Friedland, Richard B. Pollard, Laura Smeaton, Jean-Pierre Sommadossi, Lawrence Fox, Harold Kessler, Kenneth H. Fife, and Douglas D. Richman

326 Single-Dose Safety, Pharmacology, and Antiviral Activity of the Human Immunodeficiency Virus (HIV) Type 1 Entry Inhibitor PRO 542 in HIV-Infected Adults
Jeffrey M. Jacobson, Israel Lowy, Courtney V. Fletcher, Tobias J. O'Neill, Diep N. H. Tran, Thomas J. Ketas, Alexandra Trkola, Mary E. Klotman, Paul J. Maddon, William C. Olson, and Robert J. Israel

330 Prevalence of Mutations Associated with Reduced Antiretroviral Drug Susceptibility among Human Immunodeficiency Virus Type 1 Seroconverters in the United States, 1993–1998
Hillard Weinstock, Richard Respess, Walid Heneine, Christos J. Petropoulos, Nicholas S. Hellmann, Chi-Cheng Luo, Chou-Pong Pau, Toni Woods, Marta Gwinn, and Jonathan Kaplan

334 Incubation Time of Acute Human Immunodeficiency Virus (HIV) Infection and Duration of Acute HIV Infection Are Independent Prognostic Factors of Progression to AIDS
Philippe Vanhems, Bernard Hirschel, Andrew N. Phillips, David A. Cooper, Jeanette Vizzard, Joelle Brassard, and Luc Perrin

338 In Vivo Cytolysis and Fusion of Human Immunodeficiency Virus Type 1–Infected Lymphocytes in Lymphoid Tissue
Jan Marc Orenstein

343 Endotoxin Down-Modulates Granulocyte Colony-Stimulating Factor Receptor (CD114) on Human Neutrophils
Ursula Hollenstein, Monika Homoncik, Petra Jilma Stohlawetz, Claudia Marsik, Anna Sieder, Hans-Georg Eichler, and Bernd Jilma

347 Effects of Clinically Used Antioxidants in Experimental Pneumococcal Meningitis
Marc Auer, Luz-Andrea Pfister, David Leppert, Martin G. Täuber, and Stephen L. Leib

351 Screening for *Staphylococcus epidermidis* Markers Discriminating between Skin-Flora Strains and Those Responsible for Infections of Joint Prostheses
Jacques-Olivier Galdbart, Jeanine Allignet, Hui-Shan Tung, Cécilia Rydèn, and Névine El Solh

356 Effect of Quinupristin/Dalfopristin on Production of Cytokines by Human Monocytes
Anis A. Khan, Teri R. Slifer, Fausto G. Araujo, and Jack S. Remington

359 Prevalence of Methicillin-Resistant and Methicillin-Susceptible *Staphylococcus aureus* in the Community
B. Shopsin, B. Mathema, J. Martinez, E. Ha, M. L. Campo, A. Fierman, K. Krasinski, J. Kornblum, P. Alcabes, M. Waddington, M. Riehman, and B. N. Kreiswirth

363 The Role of RANTES in Meningococcal Disease
E. D. Carrol, A. P. J. Thomson, K. J. Mobbs, and C. A. Hart

367 CD4 $\alpha\beta$ T Lymphocytes Express High Levels of the T Lymphocyte Antigen CTLA-4 (CD152) in Acute Malaria
T. Schlotmann, I. Waase, C. Jülch, U. Klauenberg, B. Müller-Myhsok, M. Dietrich, B. Fleischer, and B. M. Bröker

371 Blinded, Placebo-Controlled Trial of Antiparasitic Drugs for Trichinosis Myositis
George Watt, Supachai Saisorn, Krisada Jongsakul, Yuwaporn Sakolvaree, and Wanpen Chaicumpa

Correspondence

376 Sex and Shedding of Human Immunodeficiency Virus
Philip Cohen

376 Reply
Robert N. Taylor and Ruth M. Greenblatt

376 Detection of Cytomegalovirus Late (pp150) Antigen in Peripheral Blood Leukocytes of Patients with Human Immunodeficiency Virus–Related Lymphoma
Giuseppe Gentile, Angela Capobianchi, Roberta Gastaldi, Marzia Rolli, Susanna Capucci, Corrado Girmenia, and Pietro Martino

378 Reply
Guy Boivin

379 Possible Mechanism for Positive Interaction of Human T Cell Leukemia Type I on Liver Disease in a Hepatitis C Virus–Infected Japanese Cohort
Jorge Casseb

379 Reply
Sherri O. Stuver, Cynthia Boschi-Pinto, Akihiko Okayama, and Nancy Mueller

380 Waterborne Outbreak of Microsporidiosis
Paul R. Hunter

381 Reply
Laurent Cotte and Meja Rabodonirina

382 **Errata**

Volume 182 • Number 2 *August 2000*

Major Articles

383 Varicella Mortality: Trends before Vaccine Licensure in the United States, 1970–1994
Pamela A. Meyer, Jane F. Seward, Aisha O. Jumaan, and Melinda Wharton

391 The Senescence-Accelerated Mouse Shows Aging-Related Defects in Cellular but Not Humoral Immunity against Influenza Virus Infection
Li Dong, Isamu Mori, Mohammed Jaber Hossain, and Yoshinobu Kimura

397 The Protein Kinase–Interacting Domain in the Hepatitis C Virus Envelope Glycoprotein–2 Gene Is Highly Conserved in Genotype 1–Infected Patients Treated with Interferon
Stephen J. Polyak, Jean-Baptiste Nousbaum, Anne M. Larson, Scott Cotler, Robert L. Carithers, Jr., and David R. Gretch

405 Detection of a Major Gene Predisposing to Human T Lymphotropic Virus Type I Infection in Children among an Endemic Population of African Origin
S. Plancoulaine, A. Gessain, M. Joubert, P. Tortevoye, I. Jeanne, A. Talarmin, G. de Thé, and L. Abel

413 The *CCR5Δ32* Allele Slows Disease Progression of Human Immunodeficiency Virus–1–Infected Children Receiving Antiretroviral Treatment
Charlene F. Barroga, Claire Raskino, Moena C. Fangon, Paul E. Palumbo, Carol J. Baker, Janet A. Englund, and Stephen A. Spector

420 Correlation between Human Immunodeficiency Virus Genotypic Resistance and Virologic Response in Patients Receiving Nelfinavir Monotherapy or Nelfinavir with Lamivudine and Zidovudine
B. Atkinson, J. Isaacson, M. Knowles, E. Mazabel, and A. K. Patick

428 Pooled Analysis of 3 Randomized, Controlled Trials of Interleukin-2 Therapy in Adult Human Immunodeficiency Virus Type 1 Disease
Sean Emery, William B. Capra, David A. Cooper, Ronald T. Mitsuyasu, Joseph A. Kovacs, Pamela Vig, Mary Smolskis, Louis D. Saravolatz, H. Clifford Lane, Gwen A. Fyfe, Peter T. Curtin, and the International Interleukin-2 Study Group

435 Evaluation of $CD4^+$ T Cell Function In Vivo in HIV-Infected Patients as Measured by Bacteriophage phiX174 Immunization
Ilana Fogelman, Victoria Davey, Hans D. Ochs, Michael Elashoff, Mark B. Feinberg, JoAnn Mican, Jay P. Siegel, Michael Sneller, and H. Clifford Lane

442 Human Immunodeficiency Virus Type 1 Subtype E Envelope Recombinant Peptides Containing Naturally Immunogenic Epitopes
Sui-Yuan Chang, Vicharn Vithayasai, Prakong Vithayasai, Max Essex, and Tun-Hou Lee

451 Changes in the Composition of Circulating $CD8^+$ T Cell Subsets during Acute Epstein-Barr and Human Immunodeficiency Virus Infections in Humans
Marijke Th. L. Roos, René A. W. van Lier, Dörte Hamann, Gerlinde J. Knol, Irma Verhoofstad, Debbie van Baarle, Frank Miedema, and Peter Th. A. Schellekens

459 Acute Sexually Transmitted Infections Increase Human Immunodeficiency Virus Type 1 Plasma Viremia, Increase Plasma Type 2 Cytokines, and Decrease CD4 Cell Counts
Aggrey O. Anzala, J. Neil Simonsen, Joshua Kimani, T. Blake Ball, Nico J. D. Nagelkerke, John Rutherford, Elizabeth N. Ngugi, Job J. Bwayo, and Francis A. Plummer

467 High Levels of Tumor Necrosis Factor–α and Interleukin-1β in Bacterial Vaginosis May Increase Susceptibility to Human Immunodeficiency Virus
Katharine Sturm-Ramirez, Aïssatou Gaye-Diallo, Geoffrey Eisen, Souleymane Mboup, and Phyllis J. Kanki

474 Natural T, γδ, and NK Cells in Mycobacterial, *Salmonella*, and Human Immunodeficiency Virus Infections
Janine Jason, Ian Buchanan, Lennox K. Archibald, Okey C. Nwanyanwu, Michael Bell, Timothy A. Green, Angelia Eick, Alison Han, Dustin Razsi, Peter N. Kazembe, Hamish Dobbie, Madhu Midathada, and William R. Jarvis

482 Alcohol Consumption by C57BL/6 Mice Is Associated with Depletion of Lymphoid Cells from the Gut-Associated Lymphoid Tissues and Altered Resistance to Oral Infections with *Salmonella typhimurium*
Don Sibley and Thomas R. Jerrells

490 Seroty ɔe Distribution and Antimicrobial Resistance Patterns of Invasive Isolates of *Streptococcus pneumoniae:* Alaska, 1991–1998
Karen M. Rudolph, Alan J. Parkinson, Alisa L. Reasonover, Lisa R. Bulkow, Debra J. Parks, and Jay C. Butler

497 C3 as Substrate for Adhesion of *Streptococcus pneumoniae*
Beverly L. Smith and Margaret K. Hostetter

509 Short-Course Antibiotic Treatment of 4782 Culture-Proven Cases of Group A Streptococcal Tonsillopharyngitis and Incidence of Poststreptococcal Sequelae
Dieter Adam, Horst Scholz, and Manfred Helmerking

517 Selection of Antibiotic-Resistant Bacterial Mutants: Allelic Diversity among Fluoroquinolone-Resistant Mutations
Jianfeng Zhou, Yuzhi Dong, Xilin Zhao, Sungwoo Lee, Amol Amin, Srinivas Ramaswamy, John Domagala, James M. Musser, and Karl Drlica

526 In Vivo Neutrophil Dysfunction in Cirrhotic Patients with Advanced Liver Disease
Carmen Fiuza, Magdalena Salcedo, Gerardo Clemente, and Jose M. Tellado

534 Immune Complexes from Serum of Patients with Lyme Disease Contain *Borrelia burgdorferi* Antigen and Antigen-Specific Antibodies: Potential Use for Improved Testing
Michael Brunner and Leonard H. Sigal

540 Quantitative *Chlamydia trachomatis* Cultures: Correlation of Chlamydial Inclusion-Forming Units with Serovar, Age, Sex, and Race
L. O. Eckert, R. J. Suchland, S. E. Hawes, and W. E. Stamm

545 Amphotericin B Combined with Itraconazole or Fluconazole for Treatment of Histoplasmosis
Ann M. LeMonte, Kimberly E. Washum, Melinda L. Smedema, Carol Schnizlein-Bick, Steve M. Kohler, and L. Joseph Wheat

551 *Pneumocystis carinii* Mutations Are Associated with Duration of Sulfa or Sulfone Prophylaxis Exposure in AIDS Patients
Powel Kazanjian, Wendy Armstrong, Paul A. Hossler, William Burman, James Richardson, Chao-Hung Lee, Lawrence Crane, Joel Katz, and Steven R. Meshnick

558 Frequent Umbilical Cord–Blood and Maternal-Blood Infections with *Plasmodium falciparum, P. malariae,* and *P. ovale* in Kenya
Aaron A. R. Tobian, Rajeev K. Mehlotra, Indu Malhotra, Alex Wamachi, Peter Mungai, Davy Koech, John Ouma, Peter Zimmerman, and Christopher L. King

564 Strong Association of Interleukin-6 and Lipopolysaccharide-Binding Protein with Severity of Adverse Reactions after Diethylcarbamazine Treatment of Microfilaremic Patients
M. Haarbrink, G. K. Abadi, W. A. Buurman, M. A. Dentener, A. J. Terhell, and M. Yazdanbakhsh

570 A *Leishmania* Homolog.e of Receptors for Activated C-Kinase (LACK) Induces Both Interferon-γ and Interleukin-10 in Natural Killer Cells of Healthy Blood Donors
Kerima Maasho, Iman Satti, Susanne Nylén, Gabriel Guzman, Frits Koning, and Hannah Akuffo

Review

579 Biological Considerations in the Development of a Human Immunodeficiency Virus Vaccine
Neal Nathanson and Bonnie J. Mathieson

Concise Communications

590 Increased Liver Decompensation Risk with Atypical Hepatitis C Virus Antibody Levels
James J. Goedert, Angelos Hatzakis, Elizabeth M. Maloney, M. Elaine Eyster, and Multicenter Hemophilia Cohort Study

595 Persistence of Human Papillomavirus Type 16 Infection Is Associated with Lack of Cytotoxic T Lymphocyte Response to the E6 Antigens
Mayumi Nakagawa, Daniel P. Stites, Sandeep Patel, Sepideh Farhat, Mark Scott, Nancy K. Hills, Joel M. Palefsky, and Anna-Barbara Moscicki

599 Once-Daily Combination Therapy with Emtricitabine, Didanosine, and Efavirenz in Human Immunodeficiency Virus–Infected Patients
Jean-Michel Molina, Françoise Ferchal, Corinne Rancinan, François Raffi, Willy Rozenbaum, Daniel Sereni, Philippe Morlat, Valérie Journot, Jean-Marie Decazes, Geneviève Chêne, and the Montana (Agence Nationale de Recherches sur le SIDA 091) Study Group

603 Plasma Human Immunodeficiency Virus (HIV) Type 1 RNA Load in Men and Women with Advanced HIV-1 Disease
Leslie A. Kalish, Ann C. Collier, Timothy P. Flanigan, Princy N. Kumar, and Viral Activation Transfusion Study Group

607 A Fusion Inhibitor (FP-21399) for the Treatment of Human Immunodeficiency Virus Infection: A Phase I Study
Bruce J. Dezube, Thomas A. Dahl, Thomas K. Wong, Beryl Chapman, Mitsunori Ono, Naoto Yamaguchi, Stephen D. Gillies, Lan Bo Chen, and Clyde S. Crumpacker

611 Risk for Preventable Opportunistic Infections in Persons with AIDS after Antiretroviral Therapy Increases $CD4^+$ T Lymphocyte Counts above Prophylaxis Thresholds
Mark S. Dworkin, Debra L. Hanson, Jonathan E. Kaplan, Jeffrey L. Jones, John W. Ward, and the Adult/Adolescent Spectrum of HIV Disease Project

616 Transmission of the Agent of Human Granulocytic Ehrlichiosis by *Ixodes spinipalpis* Ticks: Evidence of an Enzootic Cycle of Dual Infection with *Borrelia burgdorferi* in Northern Colorado
Nordin S. Zeidner, Thomas R. Burkot, Robert Massung, William L. Nicholson, Marc C. Dolan, Jeremiah S. Rutherford, Brad J. Biggerstaff, and Gary O. Maupin

620 Cytolethal Distending Toxin in Avian and Human Isolates of *Helicobacter pullorum*
Vincent B. Young, Chih-Ching Chien, Kimberly A. Knox, Nancy S. Taylor, David B. Schauer, and James G. Fox

624 Sequence Variations in the Genes Encoding Dihydropteroate Synthase and Dihydrofolate Reductase and Clinical Response to Sulfadoxine-Pyrimethamine in Patients with Acute Uncomplicated Falciparum Malaria
Leonardo K. Basco, Rachida Tahar, Annick Keundjian, and Pascal Ringwald

629 The Mechanisms of Parasite Clearance after Antimalarial Treatment of *Plasmodium falciparum* Malaria
K. Chotivanich, R. Udomsangpetch, A. Dondorp, T. Williams, B. Angus, J. A. Simpson, S. Pukrittayakamee, S. Looareesuwan, C. I. Newbold, and N. J. White

634 Immunological and Clinical Evaluation of Chagasic Patients Subjected to Chemotherapy during the Acute Phase of *Trypanosoma cruzi* Infection 14–30 Years Ago
Lilian M. G. Bahia-Oliveira, Juliana A. S. Gomes, José R. Cançado, Teresa C. Ferrari, Elenice M. Lemos, Zélia M. P. Luz, Maria C. Moreira, G. Gazzinelli, and Rodrigo Correa-Oliveira

Correspondence

639 Tumor Necrosis Factor–α Increased Production during Thalidomide Treatment in Patients with Tuberculosis and Human Immunodeficiency Virus Coinfection
Andrea Gori, Maria Cristina Rossi, Daria Trabattoni, Giulia Marchetti, Maria Luisa Fusi, Chiara Molteni, Mario Clerici, and Fabio Franzetti

640 Reply
Gilla Kaplan

641 **Erratum**

Volume 182 • Number 3 *September 2000*

Major Articles

643 Cytomegalovirus Infection Decreases Expression of Thrombospondin-1 and -2 in Cultured Human Retinal Glial Cells: Effects of Antiviral Agents
Jindrich Cinatl, Jr., Martina Bittoova, Stefan Margraf, Jens-Uwe Vogel, Jaroslav Cinatl, Wolfgang Preiser, and Hans Wilhelm Doerr

652 Immune Transfer Protects Severely Immunosuppressed Mice from Murine Cytomegalovirus Retinitis and Reduces the Viral Load in Ocular Tissue
Lisa Kercher and Bradley M. Mitchell

662 Antigen-Specific T Cells Localize to the Uterine Cervix in Women with Genital Herpes Simplex Virus Type 2 Infection
David M. Koelle, Mark Schomogyi, and Lawrence Corey

671 Respiratory Syncytial Virus (RSV)–Induced Airway Hyperresponsiveness in Allergically Sensitized Mice Is Inhibited by Live RSV and Exacerbated by Formalin-Inactivated RSV
R. Stokes Peebles, Jr., James R. Sheller, Robert D. Collins, Kasia Jarzecka, Daphne B. Mitchell, and Barney S. Graham

678 Incidence and Genetic Diversity of Group C Rotavirus among Adults
Mikael Nilsson, Bo Svenungsson, Kjell-Olof Hedlund, Ingrid Uhnoo, Åsa Lagergren, Tor Akre, and Lennart Svensson

685 Astrovirus Diarrhea in Egyptian Children
Abdollah B. Naficy, Malla R. Rao, Jennifer L. Holmes, Remon Abu-Elyazeed, Stephen J. Savarino, Thomas F. Wierzba, Robert W. Frenck, Stephan S. Monroe, Roger I. Glass, and John D. Clemens

691 Genetic Diversity and Molecular Epidemiology of Norwalk-Like Viruses
Patrick Gonin, Michel Couillard, and Marie-Alix d'Halewyn

698 Genetic Epidemiology of Hepatitis C Virus throughout Egypt
Stuart C. Ray, Ray R. Arthur, Anthony Carella, Jens Bukh, and David L. Thomas

708 Estrogen Protects against Vaginal Transmission of Simian Immunodeficiency Virus
Stephen M. Smith, Gary B. Baskin, and Preston A. Marx

716 Homozygosity for a Conserved *Mhc* Class II *DQ-DRB* Haplotype Is Associated with Rapid Disease Progression in Simian Immunodeficiency Virus–Infected Macaques: Results from a Prospective Study
Ulrike Sauermann, Christiane Stahl-Hennig, Nicole Stolte, Thorsten Mühl, Michael Krawczak, Michael Spring, Dietmar Fuchs, Franz-Josef Kaup, Gerhard Hunsmann, and Sieghart Sopper

725 Effects of Multiple Acute Morphine Exposures on Feline Immunodeficiency Virus Disease Progression
Margaret C. Barr, Jean-Noel Billaud, Donald R. Selway, Salvador Huitron-Resendiz, Kent G. Osborn, Steven J. Henriksen, and Tom R. Phillips

733 Baseline Human Immunodeficiency Virus Type 1 Phenotype, Genotype, and RNA Response after Switching from Long-Term Hard-Capsule Saquinavir to Indinavir or Soft-Gel–Capsule Saquinavir in AIDS Clinical Trials Group Protocol 333
Michael F. Para, David V. Glidden, Robert W. Coombs, Ann C. Collier, Jon H. Condra, Charles Craig, Roland Bassett, Randi Leavitt, Sally Snyder, Vincent McAuliffe, Charles Boucher, and AIDS Clinical Trials Group Protocol 333 Team

744 The Danish Protease Inhibitor Study: A Randomized Study Comparing the Virological Efficacy of 3 Protease Inhibitor–Containing Regimens for the Treatment of Human Immunodeficiency Virus Type 1 Infection
Terese L. Katzenstein, Ole Kirk, Court Pedersen, Jens D. Lundgren, Henrik Nielsen, Niels Obel, Claus Nielsen, Lars R. Mathiesen, and Jan Gerstoft

751 Recovery of Replication-Competent Virus from CD4 T Cell Reservoirs and Change in Coreceptor Use in Human Immunodeficiency Virus Type 1–Infected Children Responding to Highly Active Antiretroviral Therapy
Ozlem Equils, Eileen Garratty, Lian S. Wei, Susan Plaeger, Millie Tapia, Jaime Deville, Paul Krogstad, Myung-Shin Sim, Karin Nielsen, and Yvonne J. Bryson

758 Drug Resistance and Predicted Virologic Responses to Human Immunodeficiency Virus Type 1 Protease Inhibitor Therapy
Jon H. Condra, Christos J. Petropoulos, Rainer Ziermann, William A. Schleif, Malathi Shivaprakash, and Emilio A. Emini

766 Enhancement of Human Immunodeficiency Virus Type 1–Specific CD4 and CD8 T Cell Responses in Chronically Infected Persons after Temporary Treatment Interruption
Emmanouil Papasavvas, Gabriel M. Ortiz, Robert Gross, Junwei Sun, E. Caroline Moore, Jonas J. Heymann, Mona Moonis, Johan K. Sandberg, Lea Ann Drohan, Barbara Gallagher, Jane Shull, Douglas F. Nixon, Jay R. Kostman, and Luis J. Montaner

776 Human Immunodeficiency Virus Type 1 Infection Modulates the Interleukin (IL)–1β and IL-6 Responses of Human Macrophages to CD40 Ligand Stimulation
Alberto Bergamini, Francesca Bolacchi, Barbara Bongiovanni, Vittorio Colizzi, Giulia Cappelli, Ilaria Uccella, Mario Cepparulo, Marcella Capozzi, Giorgio Mancino, and Giovanni Rocchi

785 Lamina Propria Lymphocytes, Not Macrophages, Express CCR5 and CXCR4 and Are the Likely Target Cell for Human Immunodeficiency Virus Type 1 in the Intestinal Mucosa
Gang Meng, Marty T. Sellers, Meg Mosteller-Barnum, Tina S. Rogers, George M. Shaw, and Phillip D. Smith

792 Loss of $CD4^+$ T Cell Proliferative Ability but Not Loss of Human Immunodeficiency Virus Type 1 Specificity Equates with Progression to Disease
Jamie D. K. Wilson, Nesrina Imami, Amanda Watkins, Jas Gill, Phillip Hay, Brian Gazzard, Mike Westby, and Frances M. Gotch

799 Clostridial Gas Gangrene. I. Cellular and Molecular Mechanisms of Microvascular Dysfunction Induced by Exotoxins of *Clostridium perfringens*
Amy E. Bryant, Richard Y. Z. Chen, Y. Nagata, Y. Wang, C. H. Lee, Sydney Finegold, Paul H. Guth, and Dennis L. Stevens

808 Clostridial Gas Gangrene. II. Phospholipase C–Induced Activation of Platelet gpIIbIIIa Mediates Vascular Occlusion and Myonecrosis in *Clostridium perfringens* Gas Gangrene
Amy E. Bryant, Richard Y. Z. Chen, Y. Nagata, Y. Wang, C. H. Lee, Sydney Finegold, Paul H. Guth, and Dennis L. Stevens

816 Host Specificity of Vancomycin-Resistant *Enterococcus faecium*
Rob J. L. Willems, Janetta Top, Nicole van den Braak, Alex van Belkum, Hubert Endtz, Dik Mevius, Ellen Stobberingh, Anthony van den Bogaard, and Jan D. A. van Embden

824 Severity of Group B Streptococcal Arthritis Is Correlated with β-Hemolysin Expression
Manuela Puliti, Victor Nizet, Christina von Hunolstein, Francesco Bistoni, Paolo Mosci, Graziella Orefici, and Luciana Tissi

833 Molecular Epidemiology of *Streptococcus pneumoniae* Causing Invasive Disease in 5 Countries
Birgitta Henriques, Mats Kalin, Åke Örtqvist, Barbro Olsson Liljequist, Manuel Almela, Tom J. Marrie, Maurice A. Mufson, Antonio Torres, Mark A. Woodhead, Stefan B. Svenson, and Gunilla Källenius

840 Prospective Study of Prognostic Factors in Community-Acquired Bacteremic Pneumococcal Disease in 5 Countries
Mats Kalin, Åke Örtqvist, Manuel Almela, Ewa Aufwerber, Richard Dwyer, Birgitta Henriques, Christina Jorup, Inger Julander, Tom J. Marrie, Maurice A. Mufson, R. Riquelme, Anders Thalme, Antonio Torres, and Mark A. Woodhead

848 Intranasal Immunization with Gonococcal Outer Membrane Preparations Reduces the Duration of Vaginal Colonization of Mice by *Neisseria gonorrhoeae*
Martin Plante, Ann Jerse, Josée Hamel, France Couture, Clément R. Rioux, Bernard R. Brodeur, and Denis Martin

856 In Vivo Disruption of the Fas Pathway Abrogates Gastric Growth Alterations Secondary to *Helicobacter* Infection
JeanMarie Houghton, Lisa Macera Bloch, Marsha Goldstein, Stanley Von Hagen, and Reju M. Korah

865 Natural History of Infection with *Bartonella bacilliformis* in a Nonendemic Population
Margaret Kosek, Rosa Lavarello, Robert H. Gilman, Jose Delgado, Ciro Maguiña, Manuela Verástegui, Andres G Lescano, Vania Mallqui, Jon C. Kosek, Sixto Recavarren, and Lilia Cabrera

873 Localization of Endotoxin in the Rat Intestinal Epithelium
Yimin Ge, Robert M. Ezzell, and H. Shaw Warren

882 Induction of Mucin Gene Expression in Middle Ear of Rats by Tumor Necrosis Factor–α: Potential Cause for Mucoid Otitis Media
Jizhen Lin, Atsushi Haruta, Hirokazu Kawano, Samuel B. Ho, George L. Adams, Steven K. Juhn, and Youngki Kim

888 Expression of the Chemokine Receptors CXCR1 and CXCR2 on Granulocytes in Human Endotoxemia and Tuberculosis: Involvement of the p38 Mitogen–Activated Protein Kinase Pathway
Nicole P. Juffermans, Pascale E. P. Dekkers, Maikel P. Peppelenbosch, Peter Speelman, Sander J. H. van Deventer, and Tom van der Poll

895 Evaluation of Human Antimycobacterial Immunity Using Recombinant Reporter Mycobacteria
Beate Kampmann, Peadar Ó Gaora, Valerie A. Snewin, Marie-Pierre Gares, Douglas B. Young, and Michael Levin

902 Interleukin-1 Signaling Is Essential for Host Defense during Murine Pulmonary Tuberculosis
Nicole P. Juffermans, Sandrine Florquin, Luisa Camoglio, Annelies Verbon, Arend H. Kolk, Peter Speelman, Sander J. H. van Deventer, and Tom van der Poll

909 Evidence for Long-Term Cervical Persistence of *Chlamydia trachomatis* by *ompl* Genotyping
Deborah Dean, Robert J. Suchland, and Walter E. Stamm

917 Role of Pulmonary Surfactant Protein D in Innate Defense against *Candida albicans*
Bianca A. W. M. van Rozendaal, Annemiek B. van Spriel, Jan G. J. van de Winkel and Henk P. Haagsman

Concise Communications

923 Intraocular T Cells of Patients with Herpes Simplex Virus (HSV)–Induced Acute Retinal Necrosis Recognize HSV Tegument Proteins VP11/12 and VP13/14
Georges M. G. M. Verjans, Marlinda E. M. Dings, John McLauchlan, Alex van der Kooi, Peter Hoogerhout, Humphrey F. Brugghe, Hans A. M. Timmermans, G. Seerp Baarsma, and Albert D. M. E. Osterhaus

928 $CD8^+$ Cytotoxic T Lymphocyte Responses to Lytic Proteins of Human Herpes Virus 8 in Human Immunodeficiency Virus Type 1–Infected and –Uninfected Individuals
Qiong J. Wang, Frank J. Jenkins, Lisa P. Jacobson, Yuan-Xiang Meng, Philip E. Pellett, Lawrence A. Kingsley, Konstantin G. Kousoulas, Abolghasem Baghian, and Charles R. Rinaldo, Jr.

933 Intrauterine Cytomegalovirus Infection and Glycoprotein B Genotypes
James F. Bale, Jr., Jody R. Murph, Gail J. Demmler, Jeff Dawson, June E. Miller, and Susan J. Petheram

937 Longitudinal Dynamics of Epstein-Barr Virus–Specific Cytotoxic T Lymphocytes during Posttransplant Lymphoproliferative Disorder
Kiyotaka Kuzushima, Hiroshi Kimura, Yo Hoshino, Ayami Yoshimi, Ikuya Tsuge, Keizo Horibe, Tsuneo Morishima, Tatsuya Tsurumi, and Seiji Kojima

941 Molecular Analysis of Human Immunodeficiency Virus Strains Associated with a Case of Criminal Transmission of the Virus
Christopher J. Birch, Rhonda F. McCaw, Dieter M. Bulach, Peter A. Revill, J. Tom Carter, Jane Tomnay, Beth Hatch, Tracey V. Middleton, Doris Chibo, Michael G. Catton, Jacinta L. Pankhurst, Alan M. Breschkin, Stephen A. Locarnini, and D. Scott Bowden

945 The Effect of Highly Active Antiretroviral Therapy on Binding and Neutralizing Antibody Responses to Human Immunodeficiency Virus Type 1 Infection
James M. Binley, Alexandra Trkola, Tom Ketas, Daryl Schiller, Brian Clas, Susan Little, Douglas Richman, Arlene Hurley, Martin Markowitz, and John P. Moore

950 Virological and Immunological Effects of Combination Antiretroviral Therapy with Zidovudine, Lamivudine, and Indinavir during Primary Human Immunodeficiency Virus Type 1 Infection
Don Smith, M. Michelle Berrey, Michael Robertson, Devan Mehrotra, Martin Markowitz, Luc Perrin, Nathan Clumeck, Adriano Lazzarin, Beat Burckhardt, Rainer Weber, Lawrence Corey, and David A. Cooper

955 In Vivo Virulence of *Candida albicans* Isolates Causing Mucosal Infections in People Infected with the Human Immunodeficiency Virus
Brad N. Taylor, Carl Fichtenbaum, Michael Saavedra, Joseph Slavinsky III, Rolf Swoboda, Karen Wozniak, Alfredo Arribas, William Powderly, and Paul L. Fidel, Jr.

960 Immunity to Placental Malaria. II. Placental Antigen–Specific Cytokine Responses Are Impaired in Human Immunodeficiency Virus–Infected Women
Julie M. Moore, John Ayisi, Bernard L. Nahlen, Ambrose Misore, Altaf A. Lal, and Venkatachalam Udhayakumar

965 Kinetics of Antibody Concentration and Avidity for the Assessment of Immune Response to Pneumococcal Vaccine among Children with Bone Marrow Transplants
Vana Spoulou, Panayiotis Victoratos, John P. A. Ioannidis, and Stelios Grafakos

970 A Randomized Controlled Trial of Filgrastim for the Treatment of Hospitalized Patients with Multilobar Pneumonia
Steve Nelson, Albrecht M. Heyder, Judy Stone, Michel G. Bergeron, Steven Daugherty, Gregory Peterson, Nick Fotheringham, William Welch, Steven Milwee, Richard Root, and the Multilobar Pneumonia Study Group

974 Effects of Group B Streptococci on Cord and Adult Mononuclear Cell Interleukin-12 and Interferon-γ mRNA Accumulation and Protein Secretion
Joanna L. Joyner, Nancy H. Augustine, Kristen A. Taylor, Timothy R. La Pine, and Harry R. Hill

978 Antibodies to the Junctional Adhesion Molecule Cause Disruption of Endothelial Cells and Do Not Prevent Leukocyte Influx into the Meninges after Viral or Bacterial Infection
Franziska Lechner, Ulrike Sahrbacher, Tobias Suter, Karl Frei, Manfred Brockhaus, Uwe Koedel, and Adriano Fontana

983 Effect of Thalidomide on Chemokine Production by Human Microglia
James R. Lokensgard, Shuxian Hu, Esther M. van Fenema, Wen S. Sheng, and Phillip K. Peterson

988 Reduced Interleukin-12 and Transforming Growth Factor–β1 in Severe Childhood Malaria: Relationship of Cytokine Balance with Disease Severity
Douglas J. Perkins, J. Brice Weinberg, and Peter G. Kremsner

993 Rapid Selection of *Plasmodium falciparum* Dihydrofolate Reductase Mutants by Pyrimethamine Prophylaxis
Ogobara K. Doumbo, Kassoum Kayentao, Abdoulaye Djimde, Joseph F. Cortese, Yacouba Diourte, Awa Konaré, James G. Kublin, and Christopher V. Plowe

997 Competence of the Human Host as a Reservoir for *Leishmania chagasi*
Carlos H. N. Costa, Régis B. B. Gomes, Mauro R. B. Silva, Lourdes M. Garcez, Patricia K. S. Ramos, Regina S. Santos, Jeffrey J. Shaw, John R. David, and James H. Maguire

1001 Interferon-γ Is Required for Innate Immunity to *Cryptosporidium parvum* in Mice
Anthony R. Hayward, Katherine Chmura, and Mary Cosyns

Correspondence

1005 Antibody Production in Response to Hepatitis B Surface Antigen in a Combination Hepatitis A/Hepatitis B Vaccine
Betsy Abraham and Dennis Parenti

1005 Reply
Sharon Frey, Ron Dagan, Yaffa Ashur, Xiao Q. Chen, Jose Ibarra, Herwig Kollaritsch, Mark H. Mazur, Gregory A. Poland, Keith Reisinger, Emmanuel Walter, Pierre Van Damme, Jean H. Braconier, Ingrid Uhnoo, Martin Wahl, Mark M. Blatter, Dennis Clements, David Greenberg, Robert M. Jacobson, S. Ragnar Norrby, Mina Rowe, Daniel Shouval, Sue S. Simmons, Jan van Hattum, Solveig Wennerholm, Jacqueline O'Brien Gress, Ivan Chan, and Barbara Kuter

1006 Lack of Evidence of *Borrelia* Involvement in Alzheimer's Disease
Adriana R. Marques, Susan C. Weir, Gary A. Fahle, and Steven H. Fischer

1007 *Helicobacter pylori* Infection, *cagA* Status, and Duodenal Ulcer Disease in Children
Yoram Elitsur

1008 Reply
Dulciene Maria de Magalhaes Queiroz, Ana Margarida Miguel Ferreira Nogueira, Gifone Aguiar Rocha, and Andreia Maria Camargos Rocha

1011 **Errata**

Volume 182 • Supplement 1 *September 2000*

A WORKSHOP ON MICRONUTRIENTS AND INFECTIOUS DISEASES: CELLULAR AND MOLECULAR IMMUNOMODULATORY MECHANISMS

Workshop Overview

S1 Micronutrients and Infectious Diseases: Thoughts on Integration of Mechanistic Approaches into Micronutrient Research
Christopher E. Taylor and Elizabeth S. Higgs

S5 Micronutrients and Innate Immunity
Kent L. Erickson, Edward A. Medina, and Neil E. Hubbard

S11 Effects of Lycopene and Lutein Supplementation on the Expression of Functionally Associated Surface Molecules on Blood Monocytes from Healthy Male Nonsmokers
David A. Hughes, Anthony J. A. Wright, Paul M. Finglas, Abigael C. J. Polley, Angela L. Bailey, Sian B. Astley, and Susan Southon

S16 Variations in the Cell Cycle Status of Lymphopoietic and Myelopoietic Cells Created by Zinc Deficiency
L. E. King and P. J. Fraker

S23 Innate Immunity, Gut Integrity, and Vitamin A in Gambian and Indian Infants
D. I. Thurnham, C. A. Northrop-Clewes, F. S. W. McCullough, B. S. Das, and P. G. Lunn

Micronutrient Effects on Adaptive Immunity and Cytokines

S29 Retinoic Acid and Polyriboinosinic Acid Act Synergistically to Enhance the Antibody Response to Tetanus Toxoid during Vitamin A Deficiency: Possible Involvement of Interleukin-2 Receptor-β, Signal Transducer and Activator of Transcription-1, and Interferon Regulatory Factor-1
Kathleen L. DeCicco, Reza Zolfaghari, Nan-qian Li, and A. Catharine Ross

S37 Nutritional Modulation of Malaria Morbidity and Mortality
Anuraj H. Shankar

S54 Consumption of Eicosapentaenoic Acid and Docosahexaenoic Acid Impair Murine Interleukin-12 and Interferon-γ Production In Vivo
Kevin L. Fritsche, Michele Anderson, and Chang Feng

S62 Effects of Zinc Deficiency on Th1 and Th2 Cytokine Shifts
Ananda S. Prasad

S69 Selenium and Interleukins in Persons Infected with Human Immunodeficiency Virus Type 1
M. K. Baum, M. J. Miguez-Burbano, A. Campa, and G. Shor-Posner

S74 Antioxidants, Cytokines, and Influenza Infection in Aged Mice and Elderly Humans
Sung Nim Han and Simin Nikbin Meydani

Micronutrients and Gene Expression

S81 Regulation of Cysteine-Rich Intestinal Protein, a Zinc Finger Protein, by Mediators of the Immune Response
Robert J. Cousins and Lorraine Lanningham-Foster

S85 Intracellular Zinc Depletion Induces Caspase Activation and $p21^{Waf1/Cip1}$ Cleavage in Human Epithelial Cell Lines
F. Chai, A. Q. Truong-Tran, A. Evdokiou, G. P. Young, and P. D. Zalewski

S93 Host Nutritional Status and Its Effect on a Viral Pathogen
Melinda A. Beck and Orville A. Levander

S97 Retinol and Retinol-Binding Protein: Gut Integrity and Circulating Immunoglobulins
Loredana Quadro, Mary V. Gamble, Silke Vogel, Aldo A. M. Lima, Roseann Piantedosi, Sean R. Moore, Vittorio Colantuoni, Max E. Gottesman, Richard L. Guerrant, and William S. Blaner

S103 Effects of Dietary n-3 Fatty Acids on T Cell Activation and T Cell Receptor-Mediated Signaling in a Murine Model
David N. McMurray, Christopher A. Jolly, and Robert S. Chapkin

Implications for Treatment and Disease

S108 Phenotypic and Functional Considerations in the Evaluation of Immunity in Nutritionally Compromised Hosts
M. Eric Gershwin, Andrea T. Borchers, and Carl L. Keen

S115 Effect of Transfusional Iron Overload on Immune Response
Susanna Cunningham-Rundles, Patricia J. Giardina, Robert W. Grady, Claudia Califano, Priscilla McKenzie, and Maria De Sousa

S122 Vitamin A Supplementation: Implications for Morbidity and Mortality in Children
Eduardo Villamor and Wafaie W. Fawzi

S134 Micronutrients and Infection: Interactions and Implications with Enteric and Other Infections and Future Priorities
Richard L. Guerrant, Aldo A. M. Lima, and Frances Davidson

S139 The National Institutes of Health Agenda for International Research in Micronutrient Nutrition and Infection Interactions
Gerald T. Keusch

S143 **Workshop Participants**

Volume 182 • Number 4 *October 2000*

Major Articles

1013 Epstein-Barr Virus Gene Expression in the Peripheral Blood of Transplant Recipients with Persistent Circulating Virus Loads
Lirong Qu, Michael Green, Steven Webber, Jorges Reyes, Demetrius Ellis, and David Rowe

1022 Cytokeratin 17 Is Expressed in Cells Infected with Respiratory Syncytial Virus via NF-κB Activation and Is Associated with the Formation of Cytopathic Syncytia
Joseph B. Domachowske, Cynthia A. Bonville, and Helene F. Rosenberg

1029 Pertussis Toxin Sensitization Alters the Pathogenesis of Subsequent Respiratory Syncytial Virus Infection
Julie E. Fischer, Joyce E. Johnson, Teresa R. Johnson, and Barney S. Graham

1039 Circulating Rotavirus-Specific Antibody-Secreting Cells (ASCs) Predict the Presence of Rotavirus-Specific ASCs in the Human Small Intestinal Lamina Propria
Kurt A. Brown, Jennifer A. Kriss, Charlotte A. Moser, William J. Wenner, and Paul A. Offit

1044 Common Human T Cell Leukemia Virus Type 1 (HTLV-1) Integration Sites in Cerebrospinal Fluid and Blood Lymphocytes of Patients with HTLV-1–Associated Myelopathy/Tropical Spastic Paraparesis Indicate that HTLV-1 Crosses the Blood-Brain Barrier via Clonal HTLV-1–Infected Cells
Marielle Cavrois, Antoine Gessain, Olivier Gout, Simon Wain-Hobson, and Eric Wattel

1051 Progressive Infection in a Subset of HIV-1–Positive Chimpanzees
Shawn P. O'Neil, Francis J. Novembre, Anne Brodie Hill, Carolyn Suwyn, Clyde E. Hart, Tammy Evans-Strickfaden, Daniel C. Anderson, Juliette deRosayro, James G. Herndon, Michelle Saucier, and Harold M. McClure

1063 Effects of Intermittent Interleukin-2 Therapy on Plasma and Tissue Human Immunodeficiency Virus Levels and Quasi-Species Expression
Joseph A. Kovacs, Hiromi Imamichi, Susan Vogel, Julia A. Metcalf, Robin L. Dewar, Michael Baseler, Randy Stevens, Joseph Adelsberger, Laurie Lambert, Richard T. Davey, Jr., Robert E. Walker, Judith Falloon, Michael A. Polis, Henry Masur, and H. Clifford Lane

1070 Phase 1 Trial of a Single Dose of Recombinant Human Interleukin–12 in Human Immunodeficiency Virus–Infected Patients with 100–500 CD4 Cells/μL
Mark A. Jacobson, David Hardy, Elizabeth Connick, Jessica Watson, and Michael DeBruin

1077 The Effect of Potent Antiretroviral Therapy and JC Virus Load in Cerebrospinal Fluid on Clinical Outcome of Patients with AIDS-Associated Progressive Multifocal Leukoencephalopathy
Andrea De Luca, Maria Letizia Giancola, Adriana Ammassari, Susanna Grisetti, Maria Grazia Paglia, Marco Gentile, Antonella Cingolani, Rita Murri, Giuseppina Liuzzi, Antonella D'Arminio Monforte, and Andrea Antinori

1084 Association of Vitamin A Deficiency with Cervical Squamous Intraepithelial Lesions in Human Immunodeficiency Virus–Infected Women
Audrey L. French, Lynn M. Kirstein, L. Stewart Massad, Richard D. Semba, Howard Minkoff, Sheldon Landesman, Joel Palefsky, Mary Young, Kathryn Anastos, and Mardge H. Cohen

1090 Interactions between Herpes Simplex Virus Type 2 and Human Immunodeficiency Virus Type 1 Infection in African Women: Opportunities for Intervention
François-Xavier Mbopi-Kéou, Gérard Grésenguet, Philippe Mayaud, Helen A. Weiss, Robin Gopal, Mathieu Matta, Jean-Louis Paul, David W. G. Brown, Richard J. Hayes, David C. W. Mabey, and Laurent Bélec

1097 Concurrent and Sequential Acquisition of Different Genital Human Papillomavirus Types
Katherine K. Thomas, James P. Hughes, Jane M. Kuypers, Nancy B. Kiviat, Shu-Kuang Lee, Diane E. Adam, and Laura A. Koutsky

1103 High Levels of Serum Interleukin-10 and Tumor Necrosis Factor–α Are Associated with Fatality in Fulminant Hepatitis
Masahito Nagaki, Hiroko Iwai, Takafumi Naiki, Hiroo Ohnishi, Yasutoshi Muto, and Hisataka Moriwaki

1109 Contrasting Molecular Epidemiology of Group A Streptococci Causing Tropical and Nontropical Infections of the Skin and Throat
Debra E. Bessen, Jonathan R. Carapetis, Bernard Beall, Rebecca Katz, Megan Hibble, Bart J. Currie, Tracy Collingridge, Marc W. Izzo, Dominick A. Scaramuzzino, and Kadaba S. Sriprakash

1117 Molecular Epidemiology of *nga* and NAD Glycohydrolase/ADP-Ribosyltransferase Activity among *Streptococcus pyogenes* Causing Streptococcal Toxic Shock Syndrome
Dennis L. Stevens, Daniel B. Salmi, Eric R. McIndoo, and Amy E. Bryant

1129 Use of Capsular Polysaccharide–Tetanus Toxoid Conjugate Vaccine for Type II Group B *Streptococcus* in Healthy Women
Carol J. Baker, Lawrence C. Paoletti, Marcia A. Rench, Hilde-Kari Guttormsen, Vincent J. Carey, Melissa E. Hickman, and Dennis L. Kasper

1139 Pneumococcal Capsular Polysaccharide–Specific IgA Triggers Efficient Neutrophil Effector Functions via FcαRI (CD89)
W.-Ludo van der Pol, Gestur Vidarsson, Henriette A. Vilé, Jan G. J. van de Winkel, and Maria Eugenia Rodriguez

1146 Natural Development of Antibodies to Pneumococcal Surface Protein A, Pneumococcal Surface Adhesin A, and Pneumolysin in Relation to Pneumococcal Carriage and Acute Otitis Media
Satu Rapola, Virva Jäntti, Raili Haikala, Ritva Syrjänen, George M. Carlone, Jacquelyn S. Sampson, David E. Briles, James C. Paton, Aino K. Takala, Terhi M. Kilpi, and Helena Käyhty

1153 Carriage of Internationally Spread Clones of *Streptococcus pneumoniae* with Unusual Drug Resistance Patterns in Children Attending Day Care Centers in Lisbon, Portugal
Raquel Sá-Leão, Alexander Tomasz, Ilda Santos Sanches, António Brito-Avô, Sigurdur E. Vilhelmsson, Karl G. Kristinsson, and Herminia de Lencastre

1161 The O139 Serogroup of *Vibrio cholerae* Comprises Diverse Clones of Epidemic and Nonepidemic Strains Derived from Multiple *V. cholerae* O1 or Non-O1 Progenitors
Shah M. Faruque, Manujendra N. Saha, Asadulghani, David A. Sack, R. Bradley Sack, Yoshifumi Takeda, and G. Balakrish Nair

1169 Diversity and Prevalence of PorA Types in *Neisseria meningitidis* Serogroup B in the United States, 1992–1998
Claudio T. Sacchi, Anne M. Whitney, Tanja Popovic, David S. Beall, Michael W. Reeves, Brian D. Plikaytis, Nancy E. Rosenstein, Brad A. Perkins, Maria L. C. Tondella, and Leonard W. Mayer

1177 Risk Factors for Recurrent Urinary Tract Infection in Young Women
Delia Scholes, Thomas M. Hooton, Pacita L. Roberts, Ann E. Stapleton, Kalpana Gupta, and Walter E. Stamm

1183 IgA Plasma Cell Infiltration of Proximal Respiratory Tract, Pancreas, Kidney, and Coronary Artery in Acute Kawasaki Disease
Anne H. Rowley, Stanford T. Shulman, Carrie A. Mask, Laura S. Finn, Masaru Terai, Susan C. Baker, Carlos A. Galliani, Kei Takahashi, Shiro Naoe, Mitra B. Kalelkar, and Susan E. Crawford

1192 Sulfa or Sulfone Prophylaxis and Geographic Region Predict Mutations in the *Pneumocystis carinii* Dihydropteroate Synthase Gene
Laurence Huang, Charles B. Beard, Jennifer Creasman, Deborah Levy, Jeffrey S. Duchin, Sherline Lee, Norman Pieniazek, Jane L. Carter, Carlos del Rio, David Rimland, and Thomas R. Navin

1199 Albendazole Treatment of Children with Ascariasis Enhances the Vibriocidal Antibody Response to the Live Attenuated Oral Cholera Vaccine CVD 103-HgR
Philip J. Cooper, Martha E. Chico, Genevieve Losonsky, Carlos Sandoval, Ivan Espinel, Rajeshwari Sridhara, Marcelo Aguilar, Angel Guevara, Ronald H. Guderian, Myron M. Levine, George E. Griffin, and Thomas B. Nutman

1207 Human Infection with *Ascaris lumbricoides* Is Associated with a Polarized Cytokine Response
Philip J. Cooper, Martha E. Chico, Carlos Sandoval, Ivan Espinel, Angel Guevara, Malcolm W. Kennedy, Joseph F. Urban, Jr., George E. Griffin, and Thomas B. Nutman

Concise Communications

1214 Ribavirin Inhibits West Nile Virus Replication and Cytopathic Effect in Neural Cells
Ingo Jordan, Thomas Briese, Nicole Fischer, Johnson Yiu-Nam Lau, and W. Ian Lipkin

1218 Studies of the 1996–1997 Inactivated Influenza Vaccine among Children Attending Day Care: Immunologic Response, Protection against Infection, and Clinical Effectiveness
Eugene S. Hurwitz, Michael Haber, Albert Chang, Timothy Shope, Siew T. Teo, Jill S. Giesick, Michele M. Ginsberg, and Nancy J. Cox

1222 Enteroviruses Can Persist with or without Active Viral Replication in Cardiac Tissue of Patients with End-Stage Ischemic or Dilated Cardiomyopathy
Laurent Andréoletti, Thomas Bourlet, Donatien Moukassa, Laurent Rey, David Hot, Yanwen Li, Valérie Lambert, Bernard Gosselin, Jean-François Mosnier, Czelas Stankowiak, and Pierre Wattré

1228 Conservation of the Respiratory Syncytial Virus *SH* Gene
Martin D. Chen, Marietta Vazquez, Linda Buonocore, and Jeffrey S. Kahn

1234 Prevalence of Antiviral Drug Resistance in Untreated Patients with Cytomegalovirus Retinitis
Weiqun Liu, Carol Shum, Daniel F. Martin, Baruch D. Kuppermann, Anthony J. H. Hall, and Todd P. Margolis

1239 The Impact of Human Immunodeficiency Virus Type 1 Status on Human Papillomavirus (HPV) Prevalence and HPV Antibodies in Serum and Cervical Secretions
Dianne J. Marais, Eftyhia Vardas, Gita Ramjee, Bruce Allan, Patti Kay, Robert C. Rose, and Anna-Lise Williamson

1243 Human Immunodeficiency Virus (HIV) Type 1 Antibodies in Perinatal HIV-1 Infection: Association with Human HIV-1 Transmission, Infection, and Disease Progression
Jane Pitt, Denis Henrard, Gordon FitzGerald, Lynne Mofenson, Judy Lew, George Hillyer, Hermann Mendez, Ellen Cooper, Celine Hanson, Kenneth C. Rich, and the Women and Infants Transmission Study (WITS)

1247 Antigen-Specific Production of RANTES, Macrophage Inflammatory Protein (MIP)–1α, and MIP-1β In Vitro Is a Correlate of Reduced Human Immunodeficiency Virus Burden In Vivo
John Ferbas, Janis V. Giorgi, Shamim Amini, Kathie Grovit-Ferbas, Dorothy J. Wiley, Roger Detels, and Susan Plaeger

1251 In Vitro Resistance to Thrombin-Induced Platelet Microbicidal Protein in Isolates of *Staphylococcus aureus* from Endocarditis Patients Correlates with an Intravascular Device Source
Vance G. Fowler, Jr., Lauren M. McIntyre, Michael R. Yeaman, Gail E. Peterson, L. Barth Reller, G. Ralph Corey, Dannah Wray, and Arnold S. Bayer

1255 Modulation of Cytokines and Chemokines, Limited Pulmonary Vascular Bed Permeability, and Prevention of Septicemia and Death with Ceftriaxone and Interleukin-10 in Pneumococcal Pneumonia
Erjian Wang, Marie Simard, Nathalie Ouellet, Yves Bergeron, Denis Beauchamp, and Michel G. Bergeron

1260 Primary and Booster Salivary Antibody Responses to a 7-Valent Pneumococcal Conjugate Vaccine in Infants
Sharon Choo, Qibo Zhang, Lynn Seymour, Samia Akhtar, and Adam Finn

1264 Reduced Ex Vivo Chemokine Production by Polymorphonuclear Cells after In Vivo Exposure of Normal Humans to Endotoxin
Marc J. Schultz, Dariusz P. Olszyna, Evert de Jonge, Annelies Verbon, Sander J. H. van Deventer, and Tom van der Poll

1268 High-Pathogenicity Island of *Yersinia pestis* in Enterobacteriaceae Isolated from Blood Cultures and Urine Samples: Prevalence and Functional Expression
Sören Schubert, Sonja Cuenca, Daniela Fischer, and Jürgen Heesemann

1272 Zinc-Reversible Antimicrobial Activity of Recombinant Calprotectin (Migration Inhibitory Factor–Related Proteins 8 and 14)
Peter G. Sohnle, Michael J. Hunter, Beth Hahn, and Walter J. Chazin

1276 Differential Host Susceptibility to Pulmonary Infections with Bacteria and Fungi in Mice Deficient in Myeloperoxidase
Yasuaki Aratani, Fumiaki Kura, Haruo Watanabe, Hisayoshi Akagawa, Yukie Takano, Kazuo Suzuki, Nobuyo Maeda, and Hideki Koyama

1280 Amphotericin B Induces Expression of Genes Encoding Chemokines and Cell Adhesion Molecules in the Human Monocytic Cell Line THP-1
P. David Rogers, Jonathan K. Stiles, Stanley W. Chapman, and John D. Cleary

Correspondence

1284 $CD4^+$ T Cell Surface CCR5 Density and Virus Load in Persons Infected with Human Immunodeficiency Virus Type 1
Michael Marmor, John Krowka, and Judith D. Goldberg

1285 Reply
Jacques Reynes, Pierre Portales, Jacques Clot, and Pierre Corbeau

1286 Filamentous Hemagglutinin and Pertussis Toxin from *Bordetella pertussis* Modulate Immune Responses to Unrelated Antigens
Peter McGuirk, Patricia A. Johnson, Elizabeth J. Ryan, and Kingston H. G. Mills

1288 Reply
Barney S. Graham, Teresa R. Johnson, R. Stokes Peebles, and Julie E. Fischer

Volume 182 • Number 5 *November 2000*

Major Articles

1291 The Prevalence and Incidence of Hepatitis C Virus Infections among Dialysis Patients in The Netherlands: A Nationwide Prospective Study
Peter M. Schneeberger, Ingrid Keur, Anton M. van Loon, Daniella Mortier, Katja Op de Coul, Anita Verschuuren-van Haperen, Ricardo Sanna, Toine G. van der Heijden, Heidi van den Hoven, Henk W. van Hamersvelt, Wim Quint, and Leen-Jan van Doorn

1300 Prospective Evaluation of Infection with Hepatitis G Virus in Relation to Hepatocellular Carcinoma in Shanghai, China
Jian-Min Yuan, Sugantha Govindarajan, Yu-Tang Gao, Ronald K. Ross, and Mimi C. Yu

1304 Herpes Simplex Virus DNA Vaccine Efficacy: Effect of Glycoprotein D Plasmid Constructs
J. E. Strasser, R. L. Arnold, C. Pachuk, T. J. Higgins, and D. I. Bernstein

1311 Plasmid DNA–Expressed Secreted and Nonsecreted Forms of Herpes Simplex Virus Glycoprotein D2 Induce Different Types of Immune Responses
Terry J. Higgins, Kathleen M. Herold, Renee L. Arnold, Susan P. McElhiney, Khushroo E. Shroff, and Catherine J. Pachuk

1321 Tissue Distribution and Variant Characterization of Human Herpesvirus (HHV)–6: Increased Prevalence of HHV-6A in Patients with Multiple Sclerosis
Nahid Akhyani, Rossana Berti, Meghan B. Brennan, Samantha S. Soldan, Joan M. Eaton, Henry F. McFarland, and Steven Jacobson

1326 Treatment of Respiratory Syncytial Virus Bronchiolitis and Pneumonia in a Cotton Rat Model with Systemically Administered Monoclonal Antibody (Palivizumab) and Glucocorticosteroid
Gregory A. Prince, Amy Mathews, Spencer J. Curtis, and David D. Porter

1331 Evaluation of a Live, Cold-Passaged, Temperature-Sensitive, Respiratory Syncytial Virus Vaccine Candidate in Infancy
Peter F. Wright, Ruth A. Karron, Robert B. Belshe, Juliette Thompson, James E. Crowe, Jr., Thomas G. Boyce, Lisa L. Halburnt, George W. Reed, Stephen S. Whitehead, Edwin L. Anderson, Alec E. Wittek, Roberta Casey, Maryna Eichelberger, Bhagvanji Thumar, Valerie B. Randolph, Stephen A. Udem, Robert M. Chanock, and Brian R. Murphy

1343 Phylogenetic Subgroups of Human T Cell Lymphotropic Virus (HTLV) Type I in the *tax* Gene and Their Association with Different Risks for HTLV-I–Associated Myelopathy/Tropical Spastic Paraparesis
Yoshitaka Furukawa, Masahiro Yamashita, Koichiro Usuku, Shuji Izumo, Masanori Nakagawa, and Mitsuhiro Osame

1350 Cellular Immunity to Human Immunodeficiency Virus Type 1 (HIV-1) Clades: Relevance to HIV-1 Vaccine Trials in Uganda
Huyen Cao, Indu Mani, Ronda Vincent, Roy Mugerwa, Peter Mugyenyi, Phyllis Kanki, Jerrold Ellner, and Bruce D. Walker

1357 Two Double-Blinded, Randomized, Comparative Trials of 4 Human Immunodeficiency Virus Type 1 (HIV-1) Envelope Vaccines in HIV-1–Infected Individuals across a Spectrum of Disease Severity: AIDS Clinical Trials Groups 209 and 214
Robert T. Schooley, Cathie Spino, Daniel Kuritzkes, Bruce D. Walker, Fred T. Valentine, Martin S. Hirsch, Elizabeth Cooney, Gerald Friedland, Smriti Kundu, Thomas C. Merigan, Jr., M. Juliana McElrath, Ann Collier, Susan Plaeger, Ronald Mitsuyasu, James Kahn, Patrick Haslett, Patricia Uherova, Victor deGruttola, Simon Chiu, Bin Zhang, Gayle Jones, Dawn Bell, Nzeera Ketter, Thomas Twadell, David Chernoff, Mary Rosandich, and the AIDS Clinical Trials Group 209 and 214 Study Teams

1365 Mucosal and Systemic Immune Activation Is Present in Human Immunodeficiency Virus–Exposed Seronegative Women
Mara Biasin, Sergio Lo Caputo, Livianna Speciale, Fulvia Colombo, Luigi Racioppi, Arianna Zagliani, Claudio Blé, Francesca Vichi, Luciano Cianferoni, Anna Maria Masci, Maria Luisa Villa, Pasquale Ferrante, Francesco Mazzotta, and Mario Clerici

1375 Randomized Study of Saquinavir with Ritonavir or Nelfinavir Together with Delavirdine, Adefovir, or Both in Human Immunodeficiency Virus–Infected Adults with Virologic Failure on Indinavir: AIDS Clinical Trials Group Study 359
Roy M. Gulick, X. Joan Hu, Susan A. Fiscus, Courtney V. Fletcher, Richard Haubrich, Hailong Cheng, Edward Acosta, Stephen W. Lagakos, Ronald Swanstrom, William Freimuth, Sally Snyder, Charlotte Mills, Margaret Fischl, Carla Pettinelli, and David Katzenstein, for the AIDS Clinical Trials Group Study 359 Protocol Team

1385 Treatment-Mediated Changes in Human Immunodeficiency Virus (HIV) Type 1 RNA and CD4 Cell Counts as Predictors of Weight Growth Failure, Cognitive Decline, and Survival in HIV-Infected Children
Jane C. Lindsey, Michael D. Hughes, Ross E. McKinney, Mary K. Cowles, Janet A. Englund, Carol J. Baker, Sandra K. Burchett, Mark W. Kline, Andrea Kovacs, and Jack Moye

1394 *Chlamydia pneumoniae* Induces Interleukin-10 Production that Down-Regulates Major Histocompatibility Complex Class I Expression
Sylvie Caspar-Bauguil, Bénédicte Puissant, Dani Nazzal, Jean-Claude Lefèvre, Mogens Thomsen, Robert Salvayre, and Hervé Benoist

1402 Polymorphism in *Bordetella pertussis* Pertactin and Pertussis Toxin Virulence Factors in the United States, 1935–1999
Pamela Cassiday, Gary Sanden, Kees Heuvelman, Frits Mooi, Kristine M. Bisgard, and Tanja Popovic

1409 The Increasing Incidence of Pertussis in Massachusetts Adolescents and Adults, 1989–1998
W. Katherine Yih, Susan M. Lett, Franka N. des Vignes, Krista M. Garrison, Patricia L. Sipe, and Colin D. Marchant

1417 The Emergence of *Streptococcus pneumoniae* Resistant to Macrolide Antimicrobial Agents: A 6-Year Population-Based Assessment
Kathryn Gay, Wendy Baughman, Yoon Miller, Delois Jackson, Cynthia G. Whitney, Anne Schuchat, Monica M. Farley, Fred Tenover, and David S. Stephens

1425 Human Immune Response to Streptococcal Inhibitor of Complement, a Serotype M1 Group A *Streptococcus* Extracellular Protein Involved in Epidemics
Nancy P. Hoe, Parichher Kordari, Robert Cole, Mengyao Liu, Timothy Palzkill, Wanzhi Huang, Duncan McLellan, Gerald J. Adams, Mary Hu, Jaana Vuopio-Varkila, Thomas R. Cate, Michael E. Pichichero, Kathryn M. Edwards, Juhani Eskola, Donald E. Low, and James M. Musser

1437 Pharmacologic Interference with NF-κB Activation Attenuates Central Nervous System Complications in Experimental Pneumococcal Meningitis
U. Koedel, I. Bayerlein, R. Paul, B. Sporer, and H. W. Pfister

1446 Inverse Relationship between Gastric Colonization of *Helicobacter pylori* and Diarrheal Illnesses in Children: Results of a Population-Based Cross-Sectional Study
Dietrich Rothenbacher, Martin J. Blaser, Günter Bode, and Hermannn Brenner

1450 *Helicobacter pylori vacA* and *cagA* Genotypes in Mexican Adults and Children
G. González-Valencia, J. C. Atherton, O. Muñoz, M. Dehesa, A. Madrazo-de la Garza, and J. Torres

1455 Antigenic Conservation of an Immunodominant Invariable Region of the VlsE Lipoprotein among European Pathogenic Genospecies of *Borrelia burgdorferi* SL
Fang Ting Liang, Elisabeth Aberer, Marina Cinco, Lise Gern, Chang Min Hu, Yves N. Lobet, Maurizio Ruscio, Pierre E. Voet, Jr., Vincent E. Weynants, and Mario T. Philipp

1463 T Cell–Monocyte Contact Enhances Tumor Necrosis Factor–α Production in Response to *Mycobacterium leprae*
Elizabeth P. Sampaio, Rosane B. Oliveira, Jan Warwick-Davies, Renato B. Faria Neto, George E. Griffin, and Robin J. Shattock

1473 Surfactant Protein Genetic Marker Alleles Identify a Subgroup of Tuberculosis in a Mexican Population
Joanna Floros, Hung-Mo Lin, Andrea García, Miguel Angel Salazar, Xiaoxuan Guo, Susan DiAngelo, Martha Montaño, Junming Luo, Annie Pardo, and Moises Selman

1479 Growth Inhibition of *Candida* by Human Oral Epithelial Cells
C. Steele, J. Leigh, R. Swoboda, and P. L. Fidel, Jr.

1486 Synthetic Malaria Peptide Vaccine Elicits High Levels of Antibodies in Vaccinees of Defined HLA Genotypes
Elizabeth H. Nardin, Giane A. Oliveira, J. Mauricio Calvo-Calle, Z. Rosa Castro, Ruth S. Nussenzweig, Barbara Schmeckpeper, B. Fenton Hall, Carter Diggs, Sacared Bodison, and Robert Edelman

1497 Interleukin-12 Regulates the Response to Chemotherapy in Experimental Visceral Leishmaniasis
Henry W. Murray, Christina Montelibano, Ron Peterson, and Joseph P. Sypek

1503 Infectious Disease Morbidity in the US Region Bordering Mexico, 1990–1998
Timothy J. Doyle and Ralph T. Bryan

Concise Communications

1511 Prospective Reevaluation of Risk Factors in Mother-to-Child Transmission of Hepatitis C Virus: High Virus Load, Vaginal Delivery, and Negative Anti-NS4 Antibody
Manabu Okamoto, Ikuo Nagata, Jun Murakami, Shunsaku Kaji, Toshiyuki Iitsuka, Tadataka Hoshika, Ryu Matsuda, Yusaku Tazawa, Kazuo Shiraki, and Shigeo Hino

1515 The Amino Acid Sequence of the PKR-eIF2α Phosphorylation Homology Domain of Hepatitis C Virus Envelope 2 Protein and Response to Interferon-α
Alexandra Cochrane, Alexander Orr, Megan L. Shaw, Peter R. Mills, and Elizabeth A. B. McCruden

1519 Human Caliciviruses Are a Significant Pathogen of Acute Sporadic Diarrhea in Children of Santiago, Chile
Miguel L. O'Ryan, Nora Mamani, Aldo Gaggero, Luis Fidel Avendaño, Susana Prieto, Alfredo Peña, Xi Jiang, and David O. Matson

1523 HLA Class I Alleles Associated with Susceptibility or Resistance to Human Immunodeficiency Virus Type 1 Infection among a Population in Chaco Province, Argentina
Alicia Habegger de Sorrentino, Karina Marinic, Patricia Motta, Adrián Sorrentino, Roxana López, and Ernesto Illiovich

1527 The Relationship between Virus Load Response to Highly Active Antiretroviral Therapy and Change in CD4 Cell Counts: A Report from the Women's Interagency HIV Study
Jack A. DeHovitz, Andrea Kovacs, Joseph G. Feldman, Kathryn Anastos, Mary Young, Mardge Cohen, Stephen J. Gange, Sandra Melnick, and Ruth M. Greenblatt

1531 A Randomized, Placebo-Controlled Trial of Granulocyte-Macrophage Colony-Stimulating Factor and Nucleoside Analogue Therapy in AIDS
Carlos Brites, Mark J. Gilbert, Diana Pedral-Sampaio, Fabiana Bahia, Celia Pedroso, Ana Paula Alcantara, Maria das Gracas Sasaki, Junisia Matos, Boris Renjifo, Max Essex, James B. Whitmore, Jan M. Agosti, and Roberto Badaro

1536 Ex Vivo and In Vitro Effect of Human Immunodeficiency Virus Protease Inhibitors on Neutrophil Apoptosis
Claudio M. Mastroianni, Fabio Mengoni, Miriam Lichtner, Claudia D'Agostino, Gabriella d'Ettorre, Gabriele Forcina, Monica Marzi, Gianluca Russo, Anna P. Massetti, and Vincenzo Vullo

1540 Intestinal Infection Due to Enteroaggregative *Escherichia coli* among Human Immunodeficiency Virus–Infected Persons
Petra Durrer, Reinhard Zbinden, Felix Fleisch, Martin Altwegg, Bruno Ledergerber, Helge Karch, Rainer Weber, and the Swiss HIV Cohort Study

1545 Polymorphisms in Candidate Genes and Risk of Scarring Trachoma in a *Chlamydia trachomatis*–Endemic Population
Nadia Mozzato-Chamay, Olaimatu S. M. Mahdi, Ousman Jallow, David C. W. Mabey, Robin L. Bailey, and David J. Conway

1549 Detection of Circulating Lipopolysaccharide-Bound Monocytes in Children with Gram-Negative Sepsis
Seiichiro Takeshita, Keigo Nakatani, Hiroshi Tsujimoto, Youichi Kawamura, and Isao Sekine

1553 Prevention of *Haemophilus influenzae* Type b Colonization by Vaccination: Correlation with Serum Anti-Capsular IgG Concentration
Josefina Fernandez, Orin S. Levine, Jacqueline Sanchez, Sharon Balter, Leslye LaClaire, Jesus Feris, Sandra Romero-Steiner, and the Hib Vaccine Evaluation Team

1557 An Interleukin-1 Genotype Is Associated with Fatal Outcome of Meningococcal Disease
Robert C. Read, Nicola J. Camp, Franco S. di Giovine, Raymond Borrow, Edward B. Kaczmarski, Adeel G. A. Chaudhary, Andrew J. Fox, and Gordon W. Duff

1561 Effects of Antibiotic Class on the Macrophage Inflammatory Response to *Streptococcus pneumoniae*
Karen L. Orman and B. Keith English

1566 Identification of Loci Essential for the Growth of *Helicobacter pylori* under Acidic Conditions
Jetta J. E. Bijlsma, Michael Lie-A-Ling, Inge C. Nootenboom, Christina M. J. E. Vandenbroucke-Grauls, and Johannes G. Kusters

1570 Plasma Interleukin-10:Tumor Necrosis Factor (TNF)–α Ratio Is Associated with TNF Promoter Variants and Predicts Malarial Complications
Jürgen May, Bertrand Lell, Adrian J. F. Luty, Christian G. Meyer, and Peter G. Kremsner

Correspondence

1574 Human Herpesvirus 8 in Brazilian Amerindians: Does Vertical Transmission Play a Role?
Emanuele Nicastri, Loredana Sarmati, and Massimo Andreoni

1574 Reply
Robert J. Biggar, Frank Black, and Denise Whitby

1575 Are Only Antibody Levels Involved in the Protection against Pertussis in Acellular Pertussis Vaccine Recipients?
Antonio Cassone, Paola Mastrantonio, and Clara Maria Ausiello

1576 Reply
B. Trollfors, R. Schneerson, and J. B. Robbins

1577 *Chlamydia pneumoniae* Viability in Atherosclerotic Tissue: True or False?
Marcello Valassina, Maria Grazia Cusi, Daniele Corsaro, and Carla Cellesi

1578 Reply
Francesco Blasi, Laura Fagetti, and Luigi Allegra

1579 *CCR2-64I* Polymorphism, Syncytium-Inducing Human Immunodeficiency Virus Strains, and Disease Progression
Elisa Vicenzi, Silvia Ghezzi, Andrea Brambilla, Haynes W. Sheppard, Adriano Lazzarin, Guido Poli, and Nelson L. Michael

1581 **Errata**

Volume 182 • Number 6 *December 2000*

Major Articles

1583 The Possible Role of Hepatitis A Virus in the Pathogenesis of Atherosclerosis
Jianhui Zhu, Arshed A. Quyyumi, James E. Norman, Rene Costello, Gyorgy Csako, and Stephen E. Epstein

1588 Hepatitis C Virus Infection: Prevalence, Risk Factors, and Prevention Opportunities among Young Injection Drug Users in Chicago, 1997–1999
Lorna E. Thorpe, Lawrence J. Ouellet, Jennie R. Levy, Ian T. Williams, and Edgar R. Monterroso

1595 Chronic Infection with Hepatitis C Virus in Patients with Elevated or Persistently Normal Serum Alanine Aminotransferase Levels: Comparison of Hepatic Histology and Response to Interferon Therapy
Mitchell L. Shiffman, Charmaine A. Stewart, Charlotte M. Hofmann, Melissa J. Contos, Velimir A. Luketic, Richard K. Sterling, and Arun J. Sanyal

1602 Serum Antibody as a Marker of Protection against Natural Rotavirus Infection and Disease
F. Raúl Velázquez, David O. Matson, M. Lourdes Guerrero, Justine Shults, Juan J. Calva, Ardythe L. Morrow, Roger I. Glass, Larry K. Pickering, and Guillermo M. Ruiz-Palacios

1610 Relationship between IgM Antibody to Human Cytomegalovirus, Virus Load, Donor and Recipient Serostatus, and Administration of Methylprednisolone as Risk Factors for Cytomegalovirus Disease after Liver Transplantation
V. C. Emery, A. V. Cope, C. A. Sabin, A. K. Burroughs, K. Rolles, T. Lazzarotto, M. P. Landini, S. Brojanac, J. Wise, and G. T. Maine

1616 Oral Ganciclovir in Children: Pharmacokinetics, Safety, Tolerance, and Antiviral Effects
L. M. Frenkel, E. V. Capparelli, W. M. Dankner, J. Xu, I. L. Smith, A. Ballow, M. Culnane, J. S. Read, M. Thompson, K. M. Mohan, A. Shaver, C. A. Robinson, M. J. Stempien, S. K. Burchett, A. J. Melvin, W. Borkowsky, A. Petru, A. Kovacs, R. Yogev, J. Goldsmith, E. J. McFarland, S. A. Spector, and the Pediatric AIDS Clinical Trials Group

1625 Human Immunodeficiency Virus Type 1 Infection Is Associated with Significant Mucosal Inflammation Characterized by Increased Expression of CCR5, CXCR4, and β-Chemokines
Jenny Olsson, Michael Poles, Anna-Lena Spetz, Julie Elliott, Lance Hultin, Janis Giorgi, Jan Andersson, and Peter Anton

1636 Biphasic Decay of Latently Infected $CD4^+$ T Cells in Acute Human Immunodeficiency Virus Type 1 Infection
Joel N. Blankson, Diana Finzi, Theodore C. Pierson, Beulah P. Sabundayo, Karen Chadwick, Joseph B. Margolick, Thomas C. Quinn, and Robert F. Siliciano

1643 Human Immunodeficiency Virus Transactivator Protein (Tat) Stimulates Chemotaxis, Calcium Mobilization, and Activation of Human Polymorphonuclear Leukocytes: Implications for Tat-Mediated Pathogenesis
Roberto Benelli, Andrea Barbero, Silvano Ferrini, Patrizia Scapini, Marco Cassatella, Federico Bussolino, Carlo Tacchetti, Douglas M. Noonan, and Adriana Albini

1652 Placental Abnormalities Associated with Human Immunodeficiency Virus Type 1 Infection and Perinatal Transmission in Bangkok, Thailand
David A. Schwartz, Suthi Sungkarat, Nathan Shaffer, Jirasak Laosakkitiboran, Wendy Supapol, Pichai Charoenpanich, Tuenjai Chuangsuwanich, and Timothy D. Mastro

1658 Effect of Potent Antiretroviral Therapy on Immune Responses to *Mycobacterium avium* in Human Immunodeficiency Virus–Infected Subjects
Diane V. Havlir, Rachel D. Schrier, Francesca J. Torriani, Keith Chervenak, Jimmy Y. Hwang, and W. Henry Boom

1664 Defective T Cell Function for Inhibition of Growth of *Mycobacterium avium–intracellulare* Complex (MAC) in Patients with MAC Disease: Restoration by Cytokines
Katsuhiko Tsukaguchi, Takahiro Yoneda, Hideo Okamura, Shinji Tamaki, Hideaki Takenaka, Yukinori Okamoto, and Nobuhiro Narita

1672 Human Immunodeficiency Virus Type 1–Infected Women Exhibit Reduced Interferon-γ Secretion after *Chlamydia trachomatis* Stimulation of Peripheral Blood Lymphocytes
Craig R. Cohen, Rosemary Nguti, Elizabeth A. Bukusi, Hang Lu, Caixia Shen, Ma Luo, Samuel Sinei, Frank Plummer, Job Bwayo, and Robert C. Brunham

1678 Infection and Activation of Airway Epithelial Cells by *Chlamydia pneumoniae*
Hans-Ulrich Jahn, Matthias Krüll, Frederik N. Wuppermann, Andrea C. Klucken, Simone Rosseau, Joachim Seybold, Johannes H. Hegemann, Christian A. Jantos, and Norbert Suttorp

1688 Impact of the *agr* Quorum-Sensing System on Adherence to Polystyrene in *Staphylococcus aureus*
Cuong Vuong, Henri L. Saenz, Friedrich Götz, and Michael Otto

1694 Immunization of Humans with Recombinant Pneumococcal Surface Protein A (rPspA) Elicits Antibodies That Passively Protect Mice from Fatal Infection with *Streptococcus pneumoniae* Bearing Heterologous PspA
David E. Briles, Susan K. Hollingshead, Janice King, Amy Swift, Patricia A. Braun, Moon K. Park, Laura M. Ferguson, Moon H. Nahm, and Gary S. Nabors

1702 Characterization of a Mouse-Passaged, Highly Encapsulated Variant of Group A Streptococcus in In Vitro and In Vivo Studies
Miriam Ravins, Joseph Jaffe, Emanuel Hanski, Ilanit Shetzigovski, Shira Natanson-Yaron, and Allon E. Moses

1712 Antibodies to Streptococcal Surface Enolase React with Human α-Enolase: Implications in Poststreptococcal Sequelae
Patricia A. Fontán, Vijaykumar Pancholi, Marcelo M. Nociari, and Vincent A. Fischetti

1722 Tumor Necrosis Factor (TNF)–α–Induced Interleukin-8 in Human Blood Cultures Discriminates Neutralization by the p55 and p75 TNF Soluble Receptors
Jordan I. Frishman, Carl K. Edwards III, Michael G. Sonnenberg, Tadahiko Kohno, Arthur M. Cohen, and Charles A. Dinarello

1731 Chemotactic Activity of CXC Chemokines Interleukin-8, Growth-Related Oncogene–α, and Epithelial Cell–Derived Neutrophil-Activating Protein–78 in Urine of Patients with Urosepsis
Dariusz P. Olszyna, Steven M. Opal, Jan M. Prins, David L. Horn, Peter Speelman, Sander J. H. van Deventer, and Tom van der Poll

1738 Interleukin-8 Receptor Knockout Mice Have Subepithelial Neutrophil Entrapment and Renal Scarring following Acute Pyelonephritis
Long Hang, Björn Frendéus, Gabriela Godaly, and Catharina Svanborg

1749 The Ability of *Helicobacter pylori* to Activate Neutrophils Is Determined by Factors Other Than *H. pylori* Neutrophil-Activating Protein
Alison Leakey, Justin La Brooy, and Robert Hirst

Concise Communications

1756 The GB Virus C/Hepatitis G Virus Replicates in Hepatocytes without Causing Liver Disease in Healthy Blood Donors
Robert Halasz, Matti Sällberg, Suzana Lundholm, Göran Andersson, Björn Lager, Hans Glaumann, and Ola Weiland

1761 Reactivation and Shedding of Cytomegalovirus in Astronauts during Spaceflight
Satish K. Mehta, Raymond P. Stowe, Alan H. Feiveson, Stephen K. Tyring, and Duane L. Pierson

1765 A Deletion Mutation in Region V of the Cytomegalovirus DNA Polymerase Sequence Confers Multidrug Resistance
Sunwen Chou, Richard C. Miner, and W. Lawrence Drew

1769 Patterns of Plasma Human Immunodeficiency Virus Type 1 RNA Response to Highly Active Antiretroviral Therapy in Infected Children
Stephen A. Spector, Florence H. Yong, Sheila Cabral, Terrence Fenton, Courtney V. Fletcher, James McNamara, Lynne M. Mofenson, and Stuart E. Starr

1774 Recombinant CD4-IgG2 in Human Immunodeficiency Virus Type 1–Infected Children: Phase 1/2 Study
William T. Shearer, Robert J. Israel, Stuart Starr, Courtney V. Fletcher, Diane Wara, Mobeen Rathore, Joseph Church, Jaime DeVille, Terence Fenton, Bobbie Graham, Pearl Samson, Silvija Staprans, James McNamara, John Moye, Paul J. Maddon, William C. Olson, and the Pediatric AIDS Clinical Trials Group Protocol 351 Study Team

1780 Enteroaggregative *Escherichia coli* Virulence Factors in Traveler's Diarrhea Strains
Jordi Vila, Martha Vargas, Ian R. Henderson, Joaquim Gascón, and James P. Nataro

1784 Bioactive Cytidine Deaminase, an Inhibitor of Granulocyte-Macrophage Colony-Forming Cells, Is Massively Released in Fulminant Meningococcal Sepsis
Arne Bøyum, Vivi-Ann Tennfjord, Christine Gran, Dagfinn Løvhaug, Olav Øktedalen, and Petter Brandtzaeg

1788 Mutations at Amino Acid Position 315 of the *katG* Gene Are Associated with High-Level Resistance to Isoniazid, Other Drug Resistance, and Successful Transmission of *Mycobacterium tuberculosis* in The Netherlands
Dick van Soolingen, Petra E. W. de Haas, H. Rogier van Doorn, Ed Kuijper, Heinz Rinder, and Martien W. Borgdorff

1791 The Effect of the Echinocandin Analogue Caspofungin on Cell Wall Glucan Synthesis by *Cryptococcus neoformans*
Marta Feldmesser, Yvonne Kress, Aron Mednick, and Arturo Casadevall

1796 A Rapid-Format Antibody Card Test for Diagnosis of Onchocerciasis
Gary J. Weil, Cathy Steel, Fanya Liftis, Ben-Wen Li, Gillian Mearns, Edgar Lobos, and Thomas B. Nutman

1800 Lower Hookworm Incidence, Prevalence, and Intensity of Infection in Children with a Bacillus Calmette-Guérin Vaccination Scar
M. L. Barreto, L. C. Rodrigues, R. C. R. Silva, A. M. O. Assis, M. G. Reis, C. A. S. T. Santos, and R. E. Blanton

1804 Filarial Infections Increase Susceptibility to Human Immunodeficiency Virus Infection in Peripheral Blood Mononuclear Cells In Vitro
Ramya Gopinath, Mario Ostrowski, Shawn J. Justement, Anthony S. Fauci, and Thomas B. Nutman

Correspondence

1809 Immunosuppression, Timing of Human Herpesvirus 8 Infection, and Risk of Kaposi's Sarcoma among Human Immunodeficiency Virus Type 1–Infected Persons and Transplant Recipients
Giovanni Rezza

1809 Reply
Lisa P. Jacobson and Frank J. Jenkins

1810 Sensitization to Human Immunodeficiency Virus in Seronegative Exposed Partners
Pietro L. Vernazza, Christian Kahlert, and Walter Fierz

1811 Reply
Mario Clerici

1813 **Books Received**

1813 **Erratum**

1814 **Reviewers of Volume 182**

1817 **Index to Volume 182**